203. VEHICLE FENDERS.
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Fig. 1

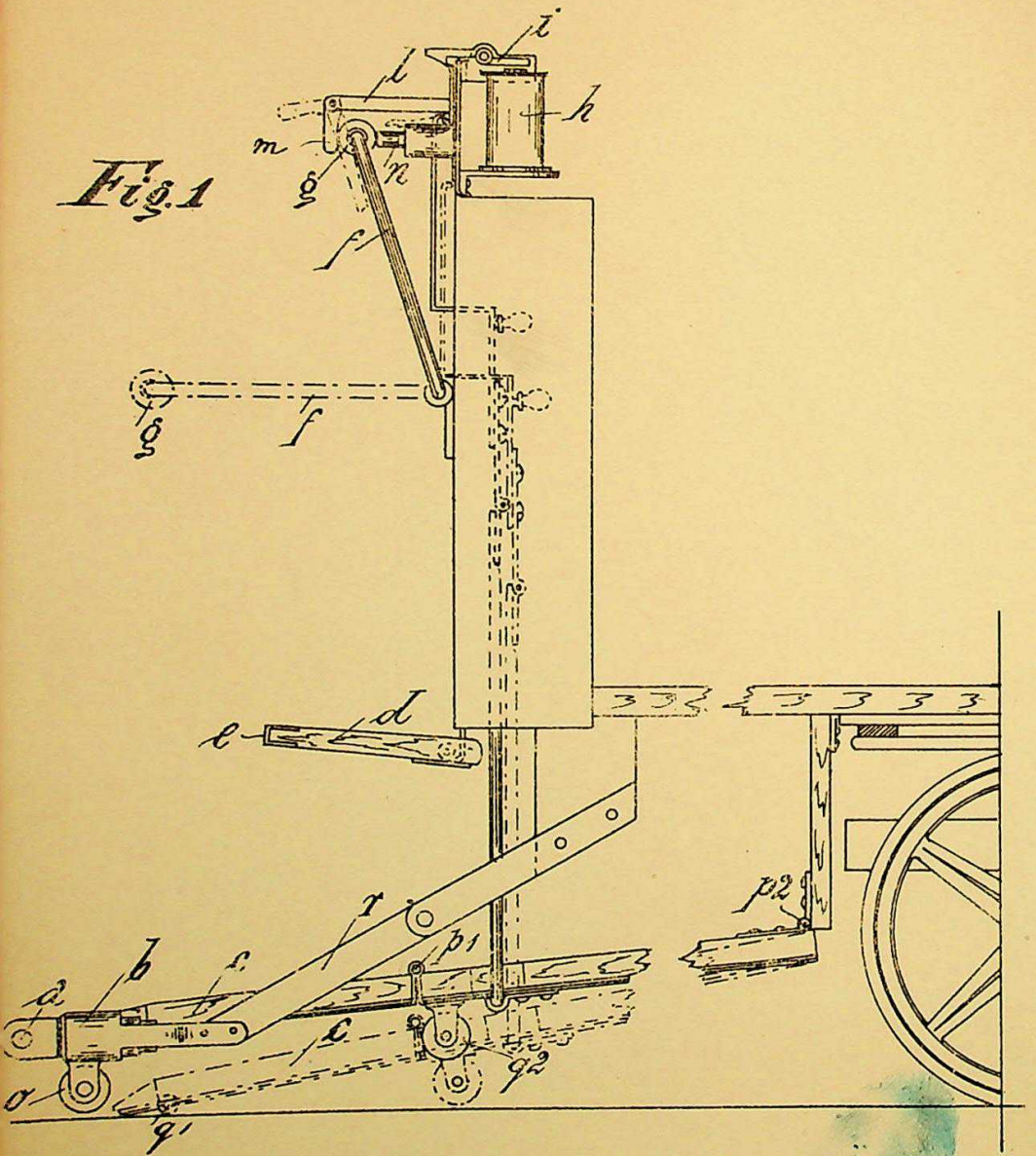


Fig. 5

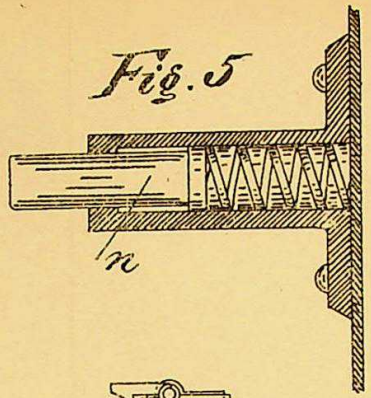


Fig. 3

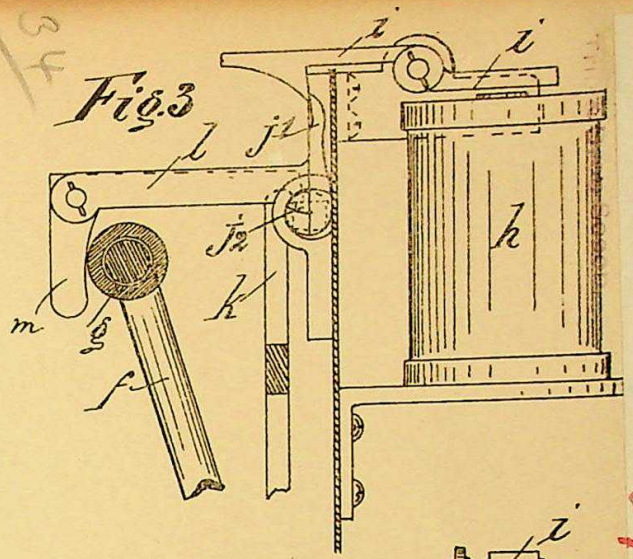
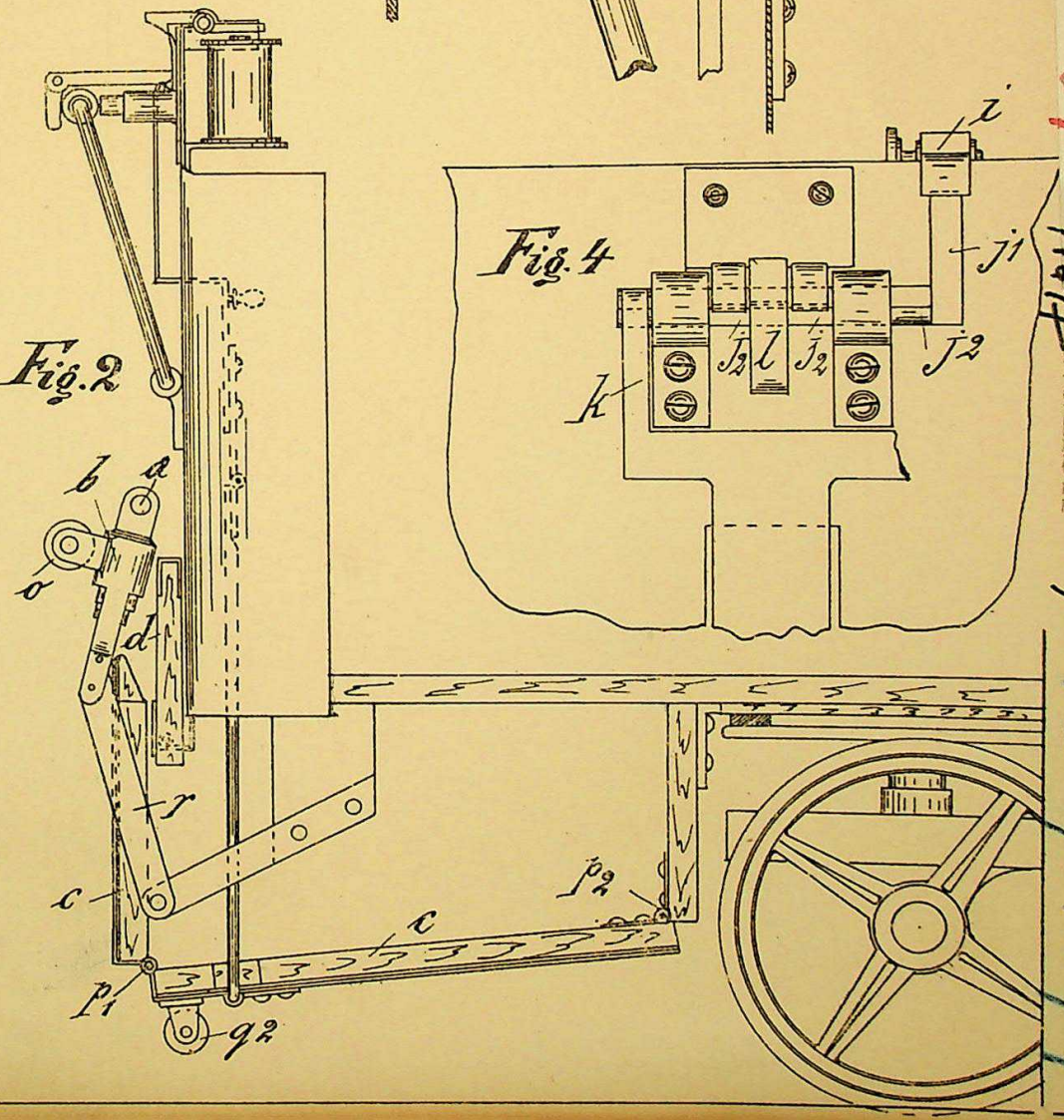


Fig. 4

Fig. 2



Fender Trip & Drop Scotch

N° 2593 A.D. 1897

34

Date of Application, 1st Feb., 1897—Accepted, 22nd May, 1897

DUPLICATE

COMPLETE SPECIFICATION.

An Improved Safety Device for Tramcars to Remove Obstructions.

I, CARL WILHELM FROELICH, Mechanician, in Hamburg, Neustaedter Fuhlentwiete 2, in Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

The object of the present invention is explained in the adjoined drawings.

Fig. 1 represents a lateral view of the safety device ready for use, the dotted lines showing the same apparatus when operating.

Fig. 2 shows the apparatus when out of use.

Fig. 3 shows the enlarged lateral view of the electro-magnetic disengaging-device for the catching-hoop.

Fig. 4 is a front-view of the disengaging gear for the catching-grate, sliding on the pavement.

Fig. 5 shows the springs by means of which the catching-hoop is thrown down.

This safety device works as follows:

A touching-bar (*a*) in suspension athwart, in front of the car, a little above the pavement, operates in case of an obstacle occurring, the very same moment on the electric contacts (*b*) fitted at both its ends by means of an electric disengaging device; causing the suspended catching-grate (*c*) to drop on the pavement, thus preserving the endangered person from being run over by the car.

With a view of furthermore preserving the person caught by the grating from being hurt by the iron pieces generally protruding from the platform of such like cars, as for instance by the buffers (not represented in the sketches), a list (*d*) is provided with an india-rubber stuffing (*e*); for: either the fall of a person has already taken place, when he or she is taken up by the catching-grate (*c*) or the person is still upright and, in this latter case, his or her falling to the ground is to be prevented, the which is performed by disengaging the catching-hoop (*f*) dropping from above upon the endangered individual and holding him or her as in an embrace.

The touching-bar (*a*) as well as the catching-hoop (*f*) are covered with soft rubber, in order to weaken any occurring blows. The disengagement is performed by the electro-magnet (*h*).

As soon as a person in danger of being run over is coming in contact with the touching-bar (*a*) the circuit is closed by the contact (*b*) connected with the battery and the electric magnet, the click-lever being attracted and raised, whereby an angular lever (j^1, j^2) is disengaged, on whose short and particularly shaped arm (j^2) as shown in the drawing Fig. 3 is suspended the catching-grate (*c*) with its connecting-bar (*k*) provided with hooks.

As soon as the lever (j^1) (j^2) is liberated, the weight of the catching-grate (*c*) causes it to descend: the hooks are disengaged and the catching-grate falls down. But at the same time another lever (*l*) rests on the short lever (j^2) detaining with its other end (*m*) the catching-hoop (*f*); on disengaging this one is also liberated, falling down for the mentioned purpose; the purpose of the plungers (*n*) fitted with springs being to give the hoop (*f*) the impulse for dropping.

With a view to prevent the whole arrangement from being damaged, all parts are adapted moveable, so that the oscillations of the cars do not affect them. Should the oscillation of the car become excessive, the rollers (*o*) fitted to the bearings,

[*Price* 8*d.*]

carrying the contact, would touch the pavement, thus avoiding the contact working without necessity.

The catching-grate is supposed to be an articulated iron frame with wooden treillage, the several parts of the frame being connected one with another by means of joints (p^1, p^2) and with the car. The rollers (q^1, q^2) are fitted to effect the contact with the pavement. Likewise provided with joints are the supports (r) of the touching-bar, the list (d) being also fixed in the same way, so that when not in use the whole device appears as in Fig. 2, where the letters have the same signification. This arrangement is of importance when two cars are to be coupled. The coupling may be performed passing through the safety-device. It is moreover to be stated that the touching-bar (a) is located loose in its supports (r) at both ends, thus enabling it to be lifted at one end, in case any obstacle passes under one end of the touching-bar (a) only: this disposition rendering it also possible that each contact can work separately and effect the disengagement.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A safety-device to be fitted to tram-cars, to remove obstructions, characterized by a touching-bar applied to a catching-grate (c) suspended under the car, the touching-bar being provided with electric contacts effecting an electro-magnetic disengagement of the suspension of the catching-grate (c) in such a manner as to cause it to touch the pavement and receive the person met by the accident.

2. In combination with safety-devices for tram-cars the appliance of a catching-hoop (f) which, disengaged at the proper moment, will embrace the falling person and hold him or her fast.

Dated, Hamburg, 29th of January 1897.

CARL WILHELM FROELICH,
By Carl O. Lange,
Agent.

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